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BOVINE TUBERCULOSIS

BY

GEORGE B. STARKWEATHER, F.R.G.S.



WASHINGTON
THE BEACON PRESS
1910

BOVINE TUBERCULOSIS

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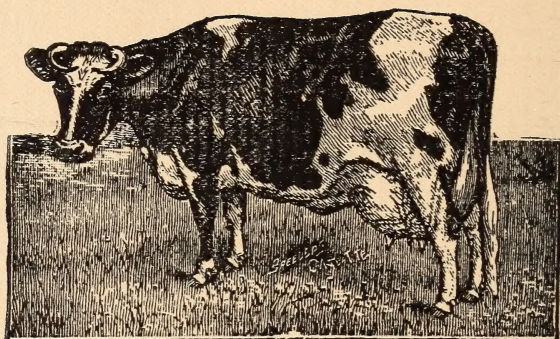
GEORGE B. STARKWEATHER, F.R.G.S.

*"Thou madest man to have dominion over the works
of Thy hands, Thou hast put all under his feet: all
sheep and oxen, yea, and the beasts of the field."*



WASHINGTON
THE BEACON PRESS
1910

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THE ABOVE CUT SHOWS THE HIGHEST TYPE
OF COW YET PRODUCED.

“DE KOL CREAMELLE”

IS HELD TO BE THE CHAMPION MILCH COW
OF THE WORLD, WITH A RECORD OF
5,000 QUARTS OF MILK IN 100 DAYS.



Gift
Author
Dec 12 1922

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By
Paul Starkweather

GRATEFULLY INSCRIBED TO THE MEMORY OF THAT
INNOCENT, MARTYR THROG OF RUMINANTS
WHOSE PATIENCE, INDUSTRY AND FIDELITY
HAVE ADDED SO MATERIALLY TO OUR NATION'S
WEALTH, AND WHOSE CRUEL SACRIFICE IS A
STANDING REPROACH TO OUR VAUNTED CIVILI-
ZATION

The Beacon Press

aims to publish nothing but what is essentially new and of vital interest.

We live in a strenuous age, and manuscripts lacking brevity and conciseness will not be used by us.



It is our rare good fortune to have secured control of material—largely from this present author—which will speedily be converted into quite a

library, something of the character, scope and importance of which can be inferred from the following tentative classification and outline of subjects :

A. Formidable Array of Facts which Conclusively Prove that a Major Premise of Science Is Shockingly Erroneous.

B. The Mammalia Transformable in Surprising Directions by Virtue of a Fortunate Discovery.—Zoological Innovations.—“ Links ” Long “ Missed.”—Simian Short Cuts.—Domestic Breeds Recast.

**C. Sex Analyzed and Predetermined.
Inestimable Advantages to Accrue
from a Comprehension of this
Principle in Nature.**

**D. Definite Law of Constitutional
Inheritance Clearly Established
by Incontrovertible Facts.**

**E. Heredity and Environment Placed
in Their True Well-defined
Spheres.—New Side Lights.**

**F. Radical Revision of Ethnology.
Racial Differences Traced and
Proven to be Eliminable—Even to
the Odor, Kink and Color of the
African. Science Must Avert the
“Yellow Peril” and Solve Our
Race Problems.**

**G. Why Brunettes Abound. The Evo-
lution of the Blonde. Causes
and sure Signs of Transition
from Former Class to the Latter.**

**H. Cheering Facts for Those with
Defective Eyes, Ears and Teeth.
—Also for the Dipsomaniac and
the Kleptomaniac.**

**I. Eugenics and Biometry at Last
Provided with a Broad, Scientific
Foundation and with Abundant
Materials for a Noble Superstruc-
ture.**

J. Causes Discovered which Show the Necessity for Scientifically Revolutionizing Our Educational Institutions.

K. Cerebral Dynamics and Size of Brain. Insanity and Genius Differentiated. How to Forecast Suicide and Apportion Responsibility.

L. New Light upon Origin of, and Remedy for, Diseases. "White Plague" Fathomed—Radically Different from the Bovine Problem in Three Particulars. The Crime of Pneumonia.

M. Longevity at Will. Children's Diseases Avoidable and the Century Mark Attainable. Old Line Life Insurance Obsolescent. How to Figure at a Glance Ones "Expectation of Life." Quantity's Relation to Quality. Irrefutable Data.

N. The True and False Regarding Temperaments, Physiognomy and Phrenology. Their Constitutional Bases and Evolution Elucidated.—Also the Philosophy of Telepathy, Personal Magnetism and Clairvoyance, as well as How to Become Endowed Therewith.

Foreword

Upwards of three years ago the writer began his endeavors to get certain facts relative to dairy herds before the public, while engrossed with business matters of his own, but failed, and, later, being absent from the city at the time of the gathering of the International Tuberculosis Congress here, in September, 1908, the program was completed before his paper was reached.

The aim of the present brochure is to make apparent to all, the criminal culpability which is involved in the cause of this most prevalent scourge, and to refer to a sure antidote, as well as to an adequate, permanent preventive.

As soon as these three facts seem to be fairly grasped, the author stands ready to indicate, in a second paper, how the average cow-efficiency may be augmented fully thirty per cent.

So far from having any desire to peddle nostrums, his wish has ever been to donate all without a dollar's profit, but he can not assume the role of philanthropist, and even if he could, his gifts would be slighted by the masses, and positively spurned by those having vested interests which might be adversely affected.

His purpose here, however, is not to impugn the motives of any. He does wish to be emphatic, nevertheless, in declaring that bovine tuberculosis can now be readily and effectually eliminated from the world if such is the general wish.

G. B. S.

"CORONALTA,"
WASHINGTON, D. C.,
April, 1910.

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BOVINE TUBERCULOSIS

Strange

That in this specialized, scientific age a person from the outside, evidently old enough to know better, should presume to impose upon a busy world his opinions regarding a technical subject which to-day engrosses the brightest minds, and to expedite the solution of which philanthropists send hundreds of thousands of dollars to be spent in European laboratories! The persistent prevalence of Tuberculosis in modern dairy herds, however, is one fraught with such momentous possibilities for evil to our common humanity, that the humblest efforts should not be despised.

Our Bureau of Animal Industry, in its Circular No. 118, under date of November 6, 1907, cites the fact that of 2,052 random post-mortem examinations of human bodies, in Europe, 91 per cent showed lesions of tuberculosis, and the tenth conclusion of that document reads, "While the danger to which public health is exposed through the use of milk from tuberculous cows is of a magnitude almost beyond conception, it is unfortunately only one among many dangers to which persons are exposed through the use of impure, infected and dirty milk."

More startling than the foregoing, if possible, is the declaration which follows, taken from the public press of June 7, 1909:

“MENACE IN MILK STRAUS DECLARES.
“SAYS HUMAN RACE FACES EXTINCTION
THROUGH TUBERCULOSIS IN CATTLE.

“*Budapest, June 7.*—The extinction of the human race through the use of tuberculous milk, unless the world awakens to the gravity of the evil, was the direful prophecy of Nathan Straus, the New York philanthropist, made to-day before the International Dairy Congress.

“He declared that the spread of tuberculosis among both cattle and the human family is due to the use of tuberculous milk. Mr. Straus’ paper was read by another delegate, the author being unable to attend.

“‘Tubercular cows bear healthy calves,’ he said, ‘but straightway infect them with this disease through the milk they give their young. When the calves are weaned these diseased cows supply the germs of the White Plague to the human beings who use their milk. Thus, we are inviting the extermination of the dairy industry and of the human race, for this plague is increasing both among cattle and among men, and will increase like the spreading of a fire, so long as the milk swarming with tubercle bacilli is used as food for calves or babies.

“‘But we need not sit down in stupid helplessness. We have the tuberculin test to detect the infected animals and the Bang method of segregating the diseased cows. This will save the dairy herds, and we have the perfectly feasible method of saving the babies by pasteurizing all the milk that does not come from tuberculin-tested herds.’

“As for the consequences of dairymen

selling tuberculous milk,— Mr. Straus pointed out that there has been in New York city in two years an increase of 33 per cent in the number of new cases of tuberculosis. At this rate, he said, within a generation the great wealth of the American metropolis would be insufficient to provide support for the tuberculous patients.

“Bovine tuberculosis now costs the American farmer \$14,000,000 a year, and the immediate killing of all the tuberculous dairy cows, if it could be effected, would cost a billion dollars, Mr. Straus said. The only safe alternative was the pasteurization of all milk from infected cows.”

Other authorities, including Prof. Irving Fisher, estimate the annual loss in the United States as high as \$50,000,000.

An English Summary

But much more recent than either of the foregoing conclusions is Doctor Eastwood's Report to the Local Government Board, London, published in the *British Medical Journal*, extracts from which appear in our *Mulford's Veterinary Bulletin*, for July, 1909. It shows his conclusions after an extended study in America of the pure milk question:

“The disease is so widely disseminated and the economic obstacles to its elimination are so exceedingly great that it is impossible, even by a generous interpretation of the efforts which are being made, to put together tangible evidence of sub-

stantial success on the lines which have hitherto been followed. Tuberculosis progresses so insidiously, persists so long before manifesting its presence by physical signs, and has taken so firm a hold on the live stock of the country, that there is not the least hope of being able to stamp it out by the application of any simple and drastic measures which have been effective in eliminating other infectious diseases.

“It is impossible to study American experiments of compensation without forming a definite opinion on that point. When a herd contains animals broken down with tuberculosis, it practically always contains also other animals in a less advanced but progressive stage of the disease. The mere elimination of the former animals does not produce a clean herd; the other infected animals gradually develop the conditions of those already slaughtered and continue, by fœcal and other discharges, to pass on the infection to new arrivals. So the process goes on indefinitely, and the payment of compensation for broken-down beasts is a positive encouragement for its continuance. Public money expended for this purpose is worse than wasted, by rewarding the farmer who is unwilling or unable to adopt effective measures of control; it actually aids in the continued propagation of the disease, and so contributes to the further diminution of the food-producing value of the live stock in the country.”

Now the writer positively knows that the Straus basis of hope is most fallacious, yet the above declarations contain truth enough to have caused a change of policy, and to have

quickened his sense of duty, which is responsible for these pages, as he feels that the world has been a loser in consequence of his repeated hindrances. And just here it may be well to explain what right, if any, he has to entertain such a feeling:

Medical subjects have interested me from childhood. I have been duly matriculated, and have studied medicine, yet without a thought of ever becoming a practitioner, and can not be classed as a physician—much less as a veterinary. I am neither a stock-raiser, a packer, a breeder, nor yet a dairyman, but have long been familiar with all these branches, and, over forty years ago made a discovery—still undisclosed, through no fault of mine—which should be worth millions to our packers, and prove a blessing to the world at large. But the wise reader will focus his attention on the present message, rather than on the messenger:

Bovine Tuberculosis

The cause of this appalling scourge can be summarized with *eighteen* letters, formed into the two simple words, *pulmonary passivity!* Again, *eight* letters will more briefly, though less accurately, express the same disgraceful fact—*idle feet!*

Our civilization is proud to contemplate its achievement of the *twelve-gallon cow*, with her tons of golden butter, and food experts assure us that such creatures do a big day's work in

thus producing over three pounds of milk and nearly three ounces of butter every *hour*, month in and month out—which certainly can not be denied—and “needs no special exercise.” But the thoughtful citizen, as he contemplates this marvelous product of man’s art, will flush with righteous indignation as he contemplates the criminality of our present dairy system, and our S. P. C. A. should cause the incarceration of all those who persist in its maintenance along present lines, since, with all its commendable scientific features, it presents a woeful lack of balance—is lop-sided—and, hence the trouble.

We have trebled the alimentary capacity of these faithful servants and sextupled the scope of their lacteal, or mammary glands, but have absolutely ignored the reasonable demands of their muscular and respiratory systems, leaving them in what can not be called “innocuous,” but rather *iniquitous* “desuetude”! Ten thousand facts can be presented in support of this contention, and I challenge the world to adduce a single one that tends to invalidate it!

Laboratory tests have been invaluable in the development of our animal industries and in mastering the diseases of our live stock; culture tubes, serums and antitoxins have been most serviceable in various fields of effort. The microscope, too, is simply indispensable, constantly, and yet there are crises in which none of these adjuncts will avail, and the case in hand seems to the writer one of them.

Attention has been too much concentrated on the tubercle bacilli, and so much reliance

placed upon the efficacy of tuberculin tests, that a broad, common-sense view of the situation has clearly been neglected.

One influential writer on this subject, after glancing over advance sheets of the foregoing, said, "Huh! according to this, then, all the dairyman has to do is to get a good dog and boy to stir up the herd at intervals, and see to it that the cows get some genuine exercise"—which any practical man must see would simply be making a bad situation incomparably worse!

Modern Appliances

The limit seems to have been reached by one expert who discovers deadly germs lurking and lingering about the teeth of milch cows, and who urges the necessity of bovine tooth-brushes, and of some antiseptic lotion, or dentrifice to arrest the danger.

This item might be accredited to the funny editor and dismissed with a laugh, but for the fact that we read, in August, 1909, of a certain Ohio herd of twenty-four Jerseys, valued at over \$3,000 a head, whose owner I have long known, and who actually bathes his animals daily, arrays them in fine, white linen, and brushes their teeth three times each day.

The literature of a famous dairy corporation attests that no visitor can enter its immaculate stables until clad in specially provided sterilized raiment, just as when one is admitted to the operating-room to witness a major surgical feat

which is being performed upon some royal scion.

While perhaps not in danger of becoming orientalized to the extent of having our sacred bulls and cows, it is but reasonable to expect that these scientific precautions will ere long be carried to the extent of having the individual cow incased in a sterilized, hermetically sealed casket and chemically pure air supplied, as to deep-sea divers, and sterilized food rations—predigested, if perchance it can be proven that it will pay.

The bovine manicurist will, of course, soon be in evidence, but the evolution of a competent *valet de dent*, or whatever the wielder of the bovine tooth-brush may be termed, will be slow, naturally; hence the propriety of supplying the queen of the golden-print butter-ball with removable grinders, which can be treated in a wholly reliable chemical bath after each meal. The old distillery slop-diet, if adopted for a season or two, would eat away the natural teeth and prove a feasible form of painless dentistry, and thus appease the humanitarian.

By Nature Immune

But the writer's bent is in another direction, and tends toward the simple life rather than to the infinite complexities and perplexities of this strenuous age. The patient ox of a past generation is a pleasant memory to him. Old "Bright" and "Line" he counted among his earliest friends, and, with bare feet and curry-

comb in hand he used to scramble over their huge forms and minister to their comfort as they lay chewing the cud after a hard day's work, yoked to a cart—and, oh! that sad parting when it was whispered that on the morrow the butcher would have them!

But certain it is that no tuberculous tendencies were manifest in those massive frames.

Such a yoke of oxen would be about as hard to find to-day as is the buffalo on the plains, yet tubercles played no part in the extermination of any of those noble specimens.

The writer has more than once remarked that he had this dairy scourge so well in hand that he could at pleasure transfer it to the livery stables, even, if desired. His listeners have probably viewed him either as a magician, or a conceited lunatic, according to their respective temperaments. Yet he could do exactly that, and perhaps can most vividly present the follies of the past, by explaining just how this result could be achieved.

Now Tuberculosis in our domestic animals is altogether unnatural—simply an innovation of our modern civilization—the offspring of human greed!

The writer can claim no originality in his plan for foisting this horrible disease onto livery stables, for he would proceed, precisely as avaricious men have unwittingly done in saddling the plague onto their dairy herds: He would not for a moment allow one of the horses to be driven, or even tolerate his being turned loose in a large pasture, nor, in fact, given any

fair chance to do anything that would bring the semblance of active exercise upon the lungs, for it would certainly defeat the success of this proposed experiment, which aims to win the booby-prize, by inducing tuberculosis in the horse!

“Black Beauty” might never evolve many stomachs, with cud-chewing accessories, even to a rudimentary degree, nor ever seriously demoralize our dairy-product exchanges, but as surely as cream rises, if we ever apply dairy-farm methods to this noble animal, denying him both *pulmonary* and *muscular exercise*, he will soon be able to vie with even our registered, prize-winning Ayrshires, as a producer of tubercles.

Victims of Greed

If our faithful milk purveyor, with wasted lungs and fleeting breath, could quote Scripture to her avaricious owner, the last mournful moo would doubtless be blended with this text: “The zeal of thine house hath consumed me!” And among her posthumous works might be found a carefully engrossed petition to the Humane Society, in the name of countless slaughtered innocents, to either have the principles of saving common sense applied to the modern dairy farm, or else its speedy suppression decreed!

It would seem as if any one possessed of good “horse-sense” could see that, while the latest triumphs of science are utilized in most

branches of dairying, the grossest follies are still practiced in others.

We have taken the natural cow and transformed her, by persistent efforts, along predetermined lines of breeding, coupled with an enforced, sinister environment, until to-day she is the most abnormal of quadrupeds and naturally proves a serious menace to our criss-cross civilization.

This alleged cause may seem inadequate to produce such an appalling result; but just contemplate for a moment the power of persistency—the cumulative effect of neglecting vital organs for ten or twenty consecutive generations!

There is a correlation which must obtain in the physical organs, if direst consequences are to be averted, and this interdependence of lung and muscle in the cow has been strangely overlooked and ignored for a century.

Respiration

The lungs are one of the marvels of the living organism, and, like the heart, can never get even “an hour off.” Their involuntary, or automatic, blood-purifying functions can not be dispensed with for a single moment, even during sleep, and that mild, passive process is constant throughout the silent vigils, from life’s first gasp till the last.

But critical observation teaches that these marvelous pulmonary tissues can not retain

their integrity and tone indefinitely without active exercise—the food specialist to the contrary notwithstanding.

I recently attended an illustrated lecture where a model dairy establishment was thrown upon the screen, and the speaker took special pains to point out the yard, adjoining each stable, into which the animals were turned daily, “to get all needed exercise.”

The agricultural college student, or aspiring dairy apprentice, who should watch these yards for a day, to learn just how much is required, would be forced to the conclusion that both Nature and the owner of the herd were “mind-curists,” depending on holding the animals in “the right thought,” and in daily administering to them judicious doses of exercise by what is known as “absent treatment,” for certainly no physical effort is there put forth.

The landsman, taking his first ocean voyage, is most impressed perhaps by the conduct of the officer on the bridge, who is so often seen systematically striding back and forth, and his mind may revert to the caged animals at the Zoo that so often walk up and down before the grating, and it may gradually dawn upon him, as his own limbs begin to stiffen, that daily exercise is essential to health, even at sea. A human prisoner may sometimes be seen pacing the corridor, making his tally-mark on the wall with each circuit. But what farmer's boy ever saw Bossy do anything at all analogous?

The struggle for existence keeps the wild animals active and healthy; yet who can

blame the unsophisticated, honest, flat-footed and surfeited cow for not having more sense than her owner? In the last analysis it is the *Bank-balance bacillus* which destroys our dairy herds.

Vaccination

After the reader is fully grounded in the conviction that man's lust for gold is all that has precipitated this bovine crisis, let him contemplate the grotesque ingenuity of the *genus homo*, who, without abating his greed one iota, calls in Science to stay the plague by vaccinating against tuberculosis, "and the people say 'Amen!'" But not all of them, fortunately, for there are many who do not believe that "the hair of the dog will cure the bite" in this instance, nor that Science, with such tactics, can ever evolve from our nurseries the long-heralded "super-man."

I could name conscientious dairymen who pride themselves on their sound sense, and who feel that they exemplify it when they announce, that, regardless of climatic conditions their herds are turned out into the yard daily for at least an hour. And who has not seen these pitiable creatures poke and hobble out to escape the threatening shouts and gestures of the hired man?

The unfortunate brutes are thoroughly denaturalized, and, during the several cold months of the year, stand outside, shivering,

with their usually sleek coats bristling like that of an enraged porcupine. Then there are two or three score of rainy days when they appear to be equally miserable while in the open. Flies prove a torment for at least three months of the year, and whatever may be charged up against these pests, they do give the cow a certain amount of "incidental protection" from the ravages of tuberculosis, by provoking a special form of exercise.

Possibly, for one hundred days in the year the animal feels grateful for being turned out into God's sunshine, but all inclination to move a step—or even to stand—has been taken from her. So, with logy, distended sides, she lies down and at once gets busy chewing the cud, just as the old-fashioned farmer's wife, even in her recreations, was always active with her knitting, for the work of each of these rivals of Job is never done.

I fancy I hear some hard-headed rural residents I have known, saying, "What do I care? 'Tain't my fault. I sent the old fool out to take all the exercise she needed, and if too lazy to do it, she'll be a bigger loser than I shall!" Of course the reader must understand that these words have reference to the unreasoning cow, and not to the guardian angel of the rustic's home.

But sending the poor victims of our rapacity out into the open air for an hour or two daily, to stand or to lie down and sleepily ruminate, will never save the unfortunates from the fatal decrees of both Nature and the Veterinary.

Theories

It is interesting to note how every expert and official in this field gradually evolves some sort of an explanation for existing conditions, and here are a few of the very latest which I have noted: "It is one of those inscrutable plagues which came unbidden, and will gradually wear itself out and subside." Another says, "The stable is the source of infection, and cleanliness, windows, sunlight, whitewash and other disinfectants are our only hope." While a distinguished veterinary tells me that the mischief creeps in from neglect of the tuberculin test with registered bulls.

Later yet, I was informed that the antidotes for the disease are "sunlight, air, food and cleanliness," whereas these four factors combined can never give immunity, however essential they may each be to animal life.

Pulmonary exercise are the two magic words, however, which really count!

Doctor Henry G. Piffard, A. M., LL.D., on May 24, 1909, read a paper entitled, "Some Problems Connected with Tuberculosis," before the Medical Society of the County of New York, and to which my attention has recently been called. It later appeared in the *New York Medical Journal*, of June 19, 1909, and may now be secured from the A. R. Elliott Publishing Company.

The paper is largely technical, and displays much learning. Several paragraphs have a direct bearing on matters herein discussed and surely are more in harmony with the writer's

conclusions than are any of the above quotations.

Dr. Piffard says:

“ The importance of bovine tuberculosis is second only to that of the human affection. * * * If pulmonary and other clinical forms of tuberculosis are in all cases dependent on the tubercle bacillus as we know it, and if it is a separate and wholly independent organism, then every effort should be made looking towards its destruction, and the most strenuous endeavors should be made to guard human, and, I may say, the bovine body from coming in contact with it.

“ On the other hand, if the germ is originally vegetarian, but facultative carnivorous, then the task of totally destroying it is almost hopeless.”

Now the reader may safely assume, from what has already been said, that I am not as much troubled over these germs as is Doctor Piffard, whatever their origin may prove to be. But, thanks to a discovery which will be clearly set forth in that book already referred to, “How to Increase Cow Efficiency Thirty Per Cent,” I expect to make plain that these destroying microscopic pests can be forever muzzled.

But to quote Doctor Piffard again:

“ If we take a given herd in which each individual is equally exposed to the dangers of infection, we find that only certain ones of them succumb * * * due manifestly to the fact that some are capable of destroying or neutralizing the infecting agent, while others are deficient in resist-

ing power. Every creature possesses a certain degree of resistance to infectious disease, and it is the loss or impairment of this natural immunity that enables the germ to overcome and destroy its host."

While fully accepting as true the assertions of this quotation, and his contention that man's cupidity is at the bottom of it all, I differ with the Doctor as to the four causes, which to him are most obvious, to wit: "Inbreeding, stimulating foods, stable coddling and early breeding." That these are four deplorable abuses I readily concede; but, in spite of them all, by virtue of the disclosure above alluded to, in connection with improved milch cows, I can insure immunity.

Nothing could be truer than Doctor Piffard's remark that—

"the vital organs in the thoracic cavity of the high-bred Jersey cow are neglected, while those at the pelvic end are raised to the seat of honor—an hypertrophied udder but with atrophied lungs. The dairyman and the breeder have sown the wind, and now are reaping the whirlwind."

As to remedial steps, he says:

"Space will not permit of definite suggestions as to the proper course to be pursued; but certainly a reform in breeding and feeding, with abolition of close walled stables will tend to restore a measure of natural immunity, and possibly artificial immunization may do the rest."

Again, and for the last time—perhaps tanta-

lizingly—I declare, that this same discovery—the most notable of my life—vouchsafes healthy herds, without exacting any reform in breeding, feeding, or in stable walls, and as for artificial immunization, I abominate it!

Encouraging Prognosis

The object of this short treatise is to convince people of existing perils and of the enormities of the present dairy system, but at the same time to assure them, that, without destroying the smallest portion of the present establishments, bovine tuberculosis may be easily and permanently eradicated, and the dairy industry speedily ushered into an era of prosperity such as none of those depending upon it—which really embraces the entire community—have dared to anticipate.

Nearly twenty per cent of our present herds should be classed as tuberculous. This quarantinable portion I would undertake to restore to full and safe fellowship, on the “no cure, no pay” plan, or otherwise, as might be agreed, thanks to a specific remedy prepared by a formula of my own;—that is, I would if engaged in that line.

I say very little about it, and care even less, because within a year or so there should be no further use for it, since bovine tuberculosis is doomed, if people will but be wise.

What I do bank on, however, is the perpetual preventive—a sort of “lung lift” which is fully protected, and, while costing some-

thing, will add to the dairy profits from the start and make the industry a pleasure henceforth, to cow and owner alike—instead of a subject for dread as at present—and become a source of positive gain to humanity at large. It is a genuine lung tonic and restorer, comprising seventeen specific and absolutely indispensable features for practical success.

This is glory enough for one booklet; but the issue of the promised companion volume will presage the advent of the *super-cow*—so much superior and more desirable will she be in every respect to anything at present known.

Bovine Tuberculosis originated in the herds of English cattle breeders, and from them has been disseminated the wide world over. It is a pity that their meritorious labors should have entailed such a blight upon dumb animals, and a just reproach upon our modern civilization. I have studied the subject on the ground, in several widely separated countries, and am fairly familiar with world conditions to-day, and therefore speak with confidence.

The horrible nightmare of the present may easily be rendered but a passing shadow on the bright picture of human progress, and “the good mooly cow”—no longer a pest and plague-breeder—may ere long be safely restored to her niche, and once more become the idol of the Nursery.

If any challenge the correctness of my conclusions, I hold in reserve an altogether distinct and much more conclusive line of facts for just such an emergency.

Later

In this month of April, 1910, as these pages go to press a symposium on the pure milk question is appearing in one of the leading New York dailies, and confirms what the author has maintained for years regarding pasteurization, and from which he makes condensed quotations. There are able-bodied men whom he knows that can drink with impunity a quart or two of normal milk, yet who find a single glass of the pasteurized product distressingly indigestible, a fact which should cause parents to reflect. While hesitating personally to suggest commercialism as a factor in the problem, he finds others who are less sensitive on this point:

Dr. Louis Fischer, after years of experience as a specialist in the Willard Parker, Riverside, and Sydenham hospitals, is just issuing the third edition of his "Diseases of Infancy and Childhood," a one-thousand-page volume, in which he declares that it has been absolutely proven that the use of sterilized milk has produced in infants, scurvy, rickets, and marasmus, and says it is his opinion that the persistent taking of pasteurized fluid might produce the same in a lesser degree, though not yet as definitely proven as with sterilization.

"Pasteurized milk is essentially dead milk, for the life in it has been destroyed. All milk to be palatable must have life in it. Pasteurization also gives too many opportunities to those who would mix milk from all sources—good, bad and indiffer-

ent, and by treatment convert it into a seemingly sweet and wholesome product, which, however, still retains all its injurious properties. Contaminated milk can no more be made suitable for food by pasteurization than a piece of tainted meat can be made fit to eat by boiling it.

“The main thing is to get milk taken from absolutely healthy cows, cooled at once, and then bottled in the country and kept cold during transportation. Pure and fresh raw milk is an excellent food, and it has been demonstrated that it will destroy the germs of cholera and typhoid placed within it.”

Dr. Fischer finds that the medical profession is abandoning the use of pasteurized milk as it has the old sterilization process.

Dr. Ernest J. Lederle, president of the New York City Board of Health, thinks pasteurization should be recommended while milk comes to that city from so many scattered and varied sources, as a makeshift till a reliable supply can be obtained.

A prominent business man is named and quoted in this same series of articles, regarding his experience while in another city with his wife and children of one and two years:

“I could not get raw milk and was obliged to get pasteurized. We noticed that the children both began to fail rapidly in health and were tormented with intestinal ailments. The elder child lost nine pounds and was rapidly going into a decline. On our return to New York we obtained excellent bottled milk and within a few hours

the children were better and their recovery was a matter of less than a week. In the light of this experience I look upon pasteurization as a Modern Moloch which makes victims of helpless children."

Dr. S. J. Essenson finds too much of the bureaucratic in the New York Board of Health and urges its complete reorganization. He says:

"From the viewpoint of the laboratory it may seem to the bacteriologists that all milk should be pasteurized; but in practice it is found to be actually harmful. It is the legitimate successor of the old boiled-milk obsession which dates back for centuries. As an inspector of a large Brooklyn district I saw many hundreds of babies and watched the effect on them of the boiled sterilized and much-exploited laboratory milk, and found the children suffering from maladies and discomforts from which they were relieved when I prescribed pure country milk in its natural raw state. Milk contains many valuable constituents such as the calcium phosphates. The heat required in pasteurization destroys them, and as a result the baby develops rickets. His bones are denied this salt and become soft.

"There are millions of germs constantly about us, and the reason we are not carried off by a thousand ills is because of the resistance to them which is made by the human system."

Raymond A. Pearson, New York State Commissioner of Agriculture, gives most decided testimony against pasteurization and urges Federal control.

Dr. L. E. La Fetra, a New York specialist in pediatrics, thinks pasteurization should be done at home, if at all, since when attempted in a commercial way, the dollar interposes and often leaves the milk worse than at first.

One of the recent numbers of the *Washington Medical Annals* attacks the pasteurization of milk.

Dr. Theron W. Kilmer, the inventor of two types of pasteurizers, declares himself a pessimist on the whole subject.

“Nothing can be said in favor of pasteurized milk as a steady diet, for children do not thrive upon it. Why this is I do not pretend to say. We know that pasteurization makes changes in the constituents of milk, and takes away that property, whatever it may be, which sustains and invigorates the child. I believe in laboratory research, but it does not follow that when a chemist says such and such a milk is good for children, that in practice it will prove to be the case. Milk once pasteurized ceases to be a cow product and becomes something else.

“One of the great dangers of pasteurized milk is the false sense of security which it gives to mothers. Because milk is pasteurized they permit it to stand in a bottle about in a hot room all day where it will rapidly cultivate bacteria by the million. They will even neglect ordinary cleanliness. The ideal condition is to have pure fresh milk.”

Dr. Joseph H. Bainton, who several years ago made researches into pasteurization, de-

clares that he is not in favor of having milk treated by the commercial process.

“ In fact I would prefer to give to children fresh raw milk guaranteed and certified to be pure.”

Dr. R. O. Brooks, director of the Official Testing Laboratory, finds six times as many bacteria in the pasteurized milk as in the raw product.

“ The milk which has been pasteurized is more liable to the influence of any disease germs than it was before, and must be kept at a low temperature and used as soon as possible.”

Dr. Thomas Darlington, former Commissioner of Health, says pasteurization may be good, but that he does not believe in it nor in the public cooking of food.

Dr. Revel B. Kimball, a specialist in pediatrics, opposes commercial pasteurization since it can become a “ cloak for fraud.”

“ The principal object which its distributors have in mind is to heat it just enough to keep it sweet. They are inclined to use whatever they can get and trust to the process to conceal its inferior quality. I have found that it produces scurvy at times, causing swelling of the gums and soreness of the legs.”

Dr. Chas. F. Chandler, professor of chemistry at Columbia University, lacks experience with pasteurization but says a good word for bacteria:

“ They are mostly good and well meaning, and there are only a few really bad

ones. There are about one hundred different kinds in the mouth of man, all of which are kept busy. They start in the process of digestion; they are very useful and should be respected. It is hardly possible to get any liquid so sterile that there is no life of any kind in it."

It may be profitable to query just how much healthier and happier a knowledge of the existence of bacteria has made humanity, and to reflect that our nonagenarian ancestors departed this life in blissful ignorance of these ubiquitous, warring, bacterial hordes.

Latest

The following startling statements are contained in a resolution introduced in the House of Representatives, April 14, by Herbert Parsons of New York, proposing an investigation by the Committee on Agriculture into the alarming spread of the great "white plague" through the medium of infected milk, cream, butter and cheese.

An exhaustive investigation of this whole subject has just been completed by our Bureau of Animal Industry, Mr. Parsons obtaining an advance copy of the Bureau's reports.

Included with the report is a most interesting monograph on the subject of the relation of the tuberculous cow to the public health, in which the author, E. C. Schroeder, M. D. V., says:

"The need for this inquiry is emphasized by the knowledge that the commonest

and most important disease of cows is also the commonest and most important disease of mankind. * * * During 1908, according to the most reliable figures obtainable, 160,000 human lives were prematurely ended by tuberculosis in the United States alone, and this enormous number does not include the deaths hastened by tuberculosis, but chargeable to other immediate causes. Every one of these deaths was due to infectious material that had its origin within and was expelled from the bodies of tuberculous persons and animals. * * *

“Milk is so often infected with tubercle bacilli that unless we know it to be derived from cows that are certainly free from tuberculosis, it is not safe to use it in a raw state. Tubercle bacilli in milk are transferred to the cream, butter and cheese made from it and may occur in these products in greater concentration than in the milk from which they are derived.

“An excellent medium for the preservation of the life and virulence of the tubercle bacilli is found in butter by reason of its moist, bland, opaque character. * * *

“The elimination of tuberculosis from the dairy herd is urgently requested, not only because the protection of public health requires it, but also because tuberculosis among cattle is a serious cause of pecuniary loss, so serious, indeed, that from the strictly economic point of view it must be regarded as the most important problem that those interested in animal husbandry can undertake to solve.”

The report of the Bureau adds that

“the testing of infected butter has been continued, and in the later experiments

of this nature the conclusions reached through former work have been confirmed. Tubercle bacilli will retain their vitality and virulence while in butter under common market conditions for at least five months."

The Bureau's unpublished report on this subject elaborates this statement as follows:

"It was also discovered that dairies which distribute milk infected with tubercle bacilli do so intermittently and not continuously or uninterruptedly. For example, one dairy tested on ten consecutive days was found to be distributing infected milk on the second, third and eighth days, and milk apparently free from tubercle bacilli on the remaining seven days.

"This is very important, because the number of infected dairies rather than the percentage of infected milk determines the extent to which the public is exposed to virulent tubercle bacilli through the use of milk and dairy products."

Another section of the report shows that tests made in 1907 "on a large proportion of the herds supplying milk to the city of Washington" showed that about 17 per cent of all the dairy cattle were infected with tuberculosis. The Bureau estimates the annual loss from white plague among dairy cattle at \$23,000,000.

The Parsons resolution proposes that the Committee on Agriculture investigate with a view to recommending legislation looking to the inspection and making of butter and milk in such a way as to prevent the consumption of infected products of this sort.

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